Remarks/Arguments:

According to the Office Action, mailed June 3, 2004 (hereinafter, "Office Action"), claims 1 to 14 are currently pending and under examination. In the Office Action, the Examiner made the following new arguments, objections and rejections:

- Required compliance with the sequence listing requirements of 37 CFR 1.821-1.825.
- Objected to claim 1 for informality.
- Rejected claims 1-5, 8, 9, 11 and 12 under 35 U.S.C. 102(b).
- Rejected claims 1-14 under 35 U.S.C. 103(a).
- Rejected claim 4-14 under the judicially created doctrine of obviousness-type double patenting.
- Rejected claims 9, 10 and 11 under 35 U.S.C. 112, second paragraph.

1. Remarks:

a. Amendments to the Specification.

The specification was amended by replacing the paragraph for the description of Figures 9A to 9B, beginning at page 7, line 4 with that shown above. There is support for the added phrase, "and phosphorylated linker-Hepatitis Delta virus ribozyme (antigenomic)", in Figure 9B.

The specification was also amended by replacing the last paragraph of Example 1, beginning on page 12, line 9. There is support in the sequence listing of the Instant Application for correction of the sequence identifiers.

No new matter was added by the above amendments.

b. Amendments to the Claims.

Claim 7 was canceled, without prejudice or disclaimer.

Claim 1 was amended without prejudice or disclaimer and to further Applicants' business interests and the prosecution of the present application. Claim 1 was amended to incorporate the limitation that the vector comprises the additional element that the heterologous splice site sequence is "at a location which generates perfect splice junctions and restores the fuction of the alphavirus when removed". This amendment is supported in the specification at page 4, line 26 through page 5, line 2 and by Example 1 at pages 10, line 1 through page 12, line 8. Further, Applicant amended claim 1 so that the word "sequence" follows the phrase

"heterologous splice site". This amendment is supported in the specification at page 4, line 26 through page 5, line 2.

Claim 8 was amended without prejudice or disclaimer and to further Applicants' business interests and the prosecution of the present application. Claim 8 was amended to correct a typographical error by deleting the word "Simliki" and replacing it with "Semliki".

Claim 9 was amended without prejudice or disclaimer and to further Applicants' business interests and the prosecution of the present application. The amendments to this claims were:

(1) Claim 9 was amended at line 8 by deleting the word "complementing" and replacing it with the word "complementary" to correct a typographical error.

(2) Claim 9 was also amended at line 11 by adding the phrase "which are essential for replication of the said alphavirus RNA" to modify the phrase "the complete alphavirus RNA genome regions". The latter amendment is supported in the specification at page 10, lines 5-6 which indicates that the starting material for synthesis of pMP76 is the plasmid, pSFV1. This plasmid is known to contain a cDNA fragment encoding the four non-structural proteins of Semliki Forest virus, the promoter region of 26S subgenomic RNA and the last 49 amino acids of the E1 protein, as well as the complete non-coding 3' end of the alphavirus genome. See Garoff H. et al, WO 92/10578 (1992), page 30, line 6 through page 31, line 5 and Figure 7(3). As such, pMP76 is comprised of a DNA sequence complementary to the portion of the RNA genome of Semliki Forest virus which is essential for replication of the alphavirus RNA.

(3) Claim 9 was also amended at line 20 to correct a typographical error by deleting the word "had" and substituting the word "has"

(4) Claim 9 was also amended starting at line 21 to correct typographical errors by deleting the phrase "at least one heterologous splice set provided in the complement of the DNA molecule to permit aberrant RNA splicing of one to generate perfect splice junctions in the alphavirus" and replacing it with the phrase "at least one heterologous splice site sequence provided in the complement of the DNA molecule to prevent aberrant RNA splicing and at a location which generates perfect splice junctions".

(5) Claim 9 was also amended at line 24 to incorporate the limitation that the vector comprises the additional element that the heterologous splice site sequence

is at a location which generates perfect splice junctions "and restores the fuction of the alphavirus when removed". Support for the added language is found in the specification at page 4, line 26 through page 5, line 2 and in Example 1 at pages 10, line 1 through page 12, line 8.

(6) Claim 9 was also amended at line 27 to delete the phrase "RNA molecule" and substitute it with the phrase "mRNA transcript". This amendment is supported by the specification at page 6, lines 9 to 12.

Claim 10 was amended without prejudice or disclaimer and to further Applicants' business interests and the prosecution of the present application. Claim 10 was amended by deleting the word "set" and substituting the word "site". This amendment is supported in the specification at page 4, line 8 through page 5, line 2.

Claims 12 to 14 were amended without prejudice or disclaimer and to further Applicants' business interests and the prosecution of the present application. Claims 12-14 were amended to correct their claim dependency. In each of these claims, their dependency on claim 8 was changed to claim 9.

The amendments to the claims as discussed above do not add any new matter. Applicant reserves the right to prosecute any canceled or amended subject matter in a later application.

2. Arguments.

a. Required compliance with the sequence listing requirements of 37 CFR 1.821-1.825.

The Examiner noted that Figure 9 contains nucleic acid sequences for which there are no sequence identifiers and indicated that if these sequences are already present in the sequence listing, amendment of the Brief Description of the Drawings pertaining to this figure should be done to comply with the sequence listing requirements of 37 CFR 1.821-1.825.

The Applicant amended the description of Figures 9A and 9B (beginning on page 7, line 4) by adding the phrase, "and phosphorylated linker-Hepatitis Delta virus ribozyme (antigenomic) (SEQ ID Nos: 9 and 10)". As these sequences are identified as SEQ ID Nos: 9 and 10 in the sequence listing of the Instant Application, this amendment brings the Instant Application into compliance with the sequence listing requirements of 37 CFR 1.821-1.825. Accordingly, the Applicant respectfully requests that the Examiner withdraw the objection for non-compliance with the sequence listing requirements of 37 CFR 1.821-1.825.

b. Objection to claim 1 for informality.

The Examiner objected to claim 1 because the word sequence was misspelled.

The Applicant amended claim 1 by deleting the word "seuence" and replacing it with the word, "sequence". Accordingly, the Applicant respectfully requests that this objection of claim 1 be withdrawn.

c. Rejection claims 1-5, 8, 9, 11 and 12 under 35 U.S.C. 102(b).

The Examiner rejected claims 1-5, 8, 9, 11 and 12 under 35 U.S.C. 102(b) as being anticipated by Dubensky et al. (WO 96/17072). The Examiner alleges that this reference discloses all of the element of these claims. Applicant respectfully disagrees and traverses this rejection as indicated below.

Applicant has amended claims 1 and 9 such that the claimed vectors comprise a heterologous splice site sequence at a location which generates perfect splice junctions and restores the fuction of the alphavirus when removed. Dubensky et al. fail to disclose a vector comprising this element. Thus, Dubensky et al. does not anticipate claims 1 and 9. As claims 2-5 and 8 are dependent on claim 1 and as claims 11 and 12 are dependent on claim 9, Dubensky et al. also does not anticipate claims 2-5, 8, 11 and 12. Accordingly, claims 1-5, 8, 9, 11 and 12 are not anticipated by Dubensky et al. and as such would be patentable under 35 U.S.C. 102(b). Applicant respectfully requests that this rejection be withdrawn.

d. Rejection claims 1-14 under 35 U.S.C. 103(a).

The Examiner rejected claim 1-14 under 35 U.S.C. 103(a) as being unpatentable over Dubensky et al. (WO 96/17072) in view of Li et al. (WO 96/40945). The Examiner alleges that this reference discloses all of the element of these claims. Applicant respectfully disagrees and traverses this rejection as indicated below.

The rejection as to claims 7 is moot because this claim was canceled.

Claims 1 and 9 were amended such that the heterologous splice site sequence is "at a location which generates perfect splice junctions and restores the function of the alphavirus when removed". Neither Dubensky et al. nor Li et al. teach or suggest, expressly or impliedly, this element. Accordingly, the combination of the references cannot render the instantly claimed invention of claims 1 and 9 obvious. As claims 2-6 and 8 are dependent on claim 1 and claims 10-14 are dependent on claim 9, Dubensky et al. in combination with Li et al. cannot render

obvious any of claims 2-5, 8, 11 or 12. Accordingly, Applicant respectfully requests that this rejection be withdrawn.

e. Rejection claim 4-14 under the judicially created doctrine of obviousness-type double patenting.

The Examiner rejected claim 4-14 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 6,475,780. The Examiner alleged that though the conflicting claims are not identical, they are not patentably distinct from each other because the patent claims recite that the heterologous DNA sequence included in the claimed vector is a paramyxovirus protein encoding nucleic acid, and the instant claims recite that the heterologous DNA sequence may be any heterologous DNA; therefore, the conflicting patent claims a species encompassed by the genus claimed in the instant application. Having said this, the Examiner concluded that the species claimed in the conflicting patent anticipates the instantly claimed genus, and the patent to the genus would, necessarily, extend the right of the species should the genus issue as a patent after the species.

The Applicant respectfully requests that the Examiner hold the above obviousness-type double patenting rejection in abeyance until allowable subject matter has been agreed upon. At that time, the Applicant will file the appropriate terminal disclaimer.

f. Rejection claims 9, 10 and 11 under 35 U.S.C. 112, second paragraph.

The Examiner rejected claims 9, 10 and 11 under 35 U.S.C. 112, second paragraph, as being indefinitie for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner alleged that claim 9 and by dependence claims 10 and 11 are vague and indefinite in the recitation of "at least one heterologous splice set provided in the complement of the DNA molecule to permit aberrant RNA splicing of one to generate perfect splice junctions in the alphavirus" because it is not clear what a "splice set" is, whether "permit" is intended, and what the phrase "RNA splicing of one" is intended to mean. Further, the Examiner alleged that it is not clear whether the recitation of "set" in line 2 of claim 10 is intended, or whether it is a typographical error. Finally, the Examiner, in the interests of compact prosecution, examined claim 9 as if the the recitation at issue read "at least one heterologous splice site provided in the complement of the DNA molecule to prevent aberrant RNA splicing of the alphavirus and to generate perfect splice junctions in the alphavirus; and" at lines 21-25 and claim 10 has been examined as if "set" were "site".

The Applicant amended claim 9 by deleting the phrase "at least one heterologous splice set sequence provided in the complement of the DNA molecule to permit aberrant RNA splicing of one to generate perfect splice junctions in the alphavirus" and substituting the phrase "at least one heterologous splice site sequence provided in the DNA molecule to prevent aberrant RNA splicing of the alphavirus and at a location which generates perfect splice junctions and restores the ability of the alphavirus to replicate when removed". The Applicant also amended claim 10 by deleting the word "set" and substituting the word "site".

Accordingly, the Applicant respectfully requests that this rejection of claims 9, 10 and 11 be withdrawn.

3. Conclusions.

The amendments, remarks and arguments submitted herein are intended to be fully responsive to the outstanding Office Action, to advance the prosecution of the present invention, and to place the application in condition for allowance.

The Applicant respectfully requests consideration and entry of this paper. The Applicant also respectfully requests reconsideration of this application, as amended, and issuance of a timely Notice of Allowance in this case. Should the Examiner have any questions concerning this application, she is invited to contact the undersigned at (570) 839-5537. If necessary, please charge any additional fees required or credit any fees overpaid to Deposit Account No. 50-0244.

Respectfully submitted,

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By: Robert Yoshida

Robert Yoshida
Reg. No 54,941

Aventis Pasteur, Inc.
Intellectual Property - Knerr Building
One Discovery Drive
Swiftwater, PA 18370
Telephone: (570) 839-5537
Facsimile: (570) 895-2702